ELON MUSK

A MISSION *to* SAVE *the* WORLD

Anna Crowley Redding

FEIWEL AND FRIENDS
New York

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For QUINN and CROWLEY

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CHAPTER 1

TAKE AWAY *the* ARMOR

Actor Robert Downey Jr. was looking at the opportunity of a lifetime. He'd just landed the role of comic book superhero Tony Stark, the billionaire genius also known as Iron Man.

Stark is not your cookie-cutter superhero. He wasn't born with supernatural powers. He is flawed, gritty, intense—driven. Just ask Captain America.

In an epic movie scene, Captain America confronts Tony Stark. Taking one stalking, provoking step at a time, Captain America circles Stark, spitting out a question meant to expose Stark's inferiority.

"Big man in a suit of armor. Take that off, what are you?"

Stark doesn't miss a beat and doesn't even bother to turn his head to look at Captain America before answering.

"Genius, billionaire, playboy, philanthropist."

Those four words not only summed up the man, but also summed up the herculean task Robert Downey Jr. had before him.

Downey had to accomplish nothing less than making Tony Stark *real*. And that meant embodying those four words: genius, billionaire, playboy, philanthropist.

Sitting across from *Iron Man* director Jon Favreau, Downey discussed the role. He needed to understand Stark's character deeply, answering questions like what made Tony Stark tick, what drove his ambitions, what kind of genius could transform fantasy into reality. Because if you understand the character, then you can *become* him, and that's how you bring Tony Stark to life.

Downey was struck by an idea. He wanted to hang out with a real-life Tony Stark.

And he had someone in mind. One man whose personality and life actually epitomized the heart and soul of Tony Stark's character, with all the trappings of Stark's supersized success. If Downy could spend time with this man, study him, try to get in his head, well then, Downey could nail the role.

That man was Elon Musk.

At thirty-five years old, Elon had already amassed a fortune and was well on his way to becoming one of the most powerful people in the world. With companies like PayPal, Tesla, and SpaceX, he pushed technology to the limit until he forced innovation and breakthrough, making his mark on three of the biggest industries that exist: banking, automobiles, and space. His ambitious ideas were so far-out that people often laughed at him, until they didn't—usually because he'd accomplished the impossible.

> **TBH:** Like Tony Stark, Elon also found time to make the rounds in Hollywood's most glamorous social scene. To be super clear, Elon explained to a *Telegraph* reporter that he was merely 10 percent playboy. The other 90 percent Elon put firmly in the "engineer" category.

In 2007, Robert Downey Jr. gave Elon a call and soon found himself walking around SpaceX headquarters with Elon himself—observing, talking, and picking Elon's brain. That time allowed Downey to perfect the role.

CHECK IT OUT! In the next installment of Marvel's big screen franchise, *Iron Man 2*, Elon would even have a cameo.

Elon Musk's cameo in Iron Man 2. *(© Marvel Studios.)*

That said, there was a major divergence between Elon and the comic book character. Tony Stark's script came with a slick backstory: *Child prodigy and heir apparent of famed entrepreneur accomplishes one incredible feat after another and then takes the helm of his father's company and pushes it to the next level and beyond.*

Elon's backstory was far from slick. His childhood was dark, painful, and brutal. Elon had to endure both emotional torment at home and physical attacks at school. As a bullied schoolboy in Pretoria, South Africa, he was not an heir apparent. He was not a media darling in waiting. No, Elon was simply trying to survive.

Elon Musk on March 19, 2004. (Photo by Paul Harris/Getty Images.)

NAME: Elon Reeve Musk

NICKNAMES: Genius Boy, Muskrat

DATE OF BIRTH: June 28, 1971

PLACE: Pretoria, South Africa

FIRST COMPUTER: Commodore VIC-20, at age 10

BOOKSHELF: *The Hitchhiker's Guide to the Galaxy*, by Douglas Adams, and Isaac Asimov's Foundation series.

GAME SHELF: Dungeons & Dragons

DAYDREAMS AND NIGHTMARES

AS A LITTLE BOY IN SOUTH AFRICA, IT WAS OBVIOUS FROM the time Elon could speak and toddle around that he was different. Elon's mom, Maye Musk, recognized her son's intelligence straightaway.

"He seemed to understand things quicker than other kids,"[1] she said.

But she noticed something else, too—something about Elon's behavior that concerned her. Elon would suddenly stare off in the distance, falling into a daydream so deep, so trancelike, that no one could get his attention. It could happen mid-conversation or in the middle of a busy room. His mother was worried. Did Elon have a massive hearing loss?

Shuffling him off to doctor after doctor, Maye tried to get to the bottom of it. The doctors saw it too. He sometimes seemed lost in another world that no one could penetrate.

Elon endured test after test. Finally, his doctors scheduled him for surgery. The plan was to remove his adenoids and hope Elon would hear better.

ADENOIDS: Adenoids are part of the immune system in infants and young children. Seated at the back of the nasal passageways, close to the ears, the adenoids' job is to help the body tackle viruses and other germs as they enter the body. But sometimes, in fighting infection, they swell. Usually, once the germ is dealt with, they shrink back to normal. But if the adenoids become too big or infected, they can block the Eustachian tubes and even affect hearing.

But the surgery had no impact at all. That's when they discovered his hearing was actually fine. It was his mind. Elon was simply so deep in thought, so focused on his ideas, immersed in every detail, that he detached from the rest of the world.

It was as if a movie was playing out before his eyes, allowing Elon to visually puzzle out a problem. Like daydreaming on steroids, he could not only see ideas but run virtual tests on them too.

"It seems as though the part of the brain that's usually reserved for visual processing—the part that is used to process images coming in from my eyes—gets taken over by internal thought processes," Elon explained to biographer Ashlee Vance. "I can't do this as much now because there are so many things demanding my attention but, as a kid, it happened a lot. That large part of your brain that's used to handle incoming images gets used for internal thinking."[2]

That was not the only personality trait of Elon's that stood out from an early age. A penchant for breaking rules and breaking them boldly—with commitment, drive, and flair—landed six-year-old Elon in some pretty hot water with his mother.

It all started when Elon's mom grounded him. She made his punishment perfectly clear: Elon would not be allowed to go to his cousin's birthday party.

And Elon's reaction was also perfectly clear. Stay at home? When

his younger brother and sister were going to the party? No way. Absolutely not.

Mind churning, Elon realized he needed a plan to get around the punishment.

Wait—his bike! He could ride his bike there. Elon let his mother know in no uncertain terms that he *would* most certainly be at the party. He didn't need her to drive him there. He would ride his bike—all by himself.

Elon recounted this story in an auditorium full of people at the Computer History Museum. The crowd hung on his every word as he explained that telling his mother was a critical mistake. Because as soon as he divulged his plan, his mother looked at her son and fibbed.

"She told me some story about how you needed a license for a bike and that the police would stop me,"[3] he explained.

To a six-year-old, dealing with the police seemed really bad. So a bike would not work. As Elon saw it, that left him with one option: He would have to walk.

Only, his cousin's house wasn't around the corner or in the neighborhood or even close by. In fact, the birthday party was across town—about twelve miles away.

One foot in front of the other, Elon walked. And walked. And walked.

Some *four* hours later, victory was in sight. Elon was just a couple of blocks away when he spotted his mother leaving the party with his brother and sister.

"She saw me walking down the road and freaked out,"[4] he said.

Heart racing, Elon took off and ran into his cousin's yard. He climbed a tree, perched himself high in the branches, and refused to come down.

That sense of independence and injustice was unshakeable.

Two years later, after Elon turned eight years old, his parents divorced. Elon, along with his brother, Kimbal, and sister, Tosca, lived with their mom. A model and dietician, Maye Musk woke up each morning and got to work with modeling gigs, wellness talks, meeting nutrition clients, and managing the paperwork and scheduling that comes with running your own business to make ends meet. She was not a hovering mother; she couldn't afford to be. And there was this—she wanted her children to be independent, to understand what hard work was by watching her example, and to have the freedom to find their own way.

That left Elon with a lot of time on his hands, mostly unsupervised. He did not let it go to waste. Kimbal was only a year younger, which made them natural co-conspirators.

The two boys focused on rockets. Not just reading about them, but making them and figuring out explosives.

"I am shocked," he told *Rolling Stone*, "that I have all my fingers."[5]

When he wasn't with Kimbal blowing things up or out riding their motorbikes, Elon was reading, sometimes for ten hours a day. Often, when Elon headed into town for a shopping trip with his family, he would just suddenly disappear. One minute he was there, the next minute he was nowhere to be found—until his mom or siblings checked the closest bookstore. All the way in the back, sitting on the floor, completely lost inside a book, that's where you could find Elon.

Elon's mom would even drag him along to dinner parties if she didn't have a date. "I'd bring him to meet some interesting adults, and he'd hide a book under the table to read if they weren't interesting enough,"[6] she said.

For Elon, reading wasn't simply a pastime. He was consuming vast

amounts of information, devouring books whole, and remembering every detail plucked from their pages.

"I was raised by books," he explained to *Rolling Stone*. "Books, and then my parents."[7]

And comic books. Typically when you walk into a comic book store, you look around, make your selection, pay for it, and bring it home to read. But when Elon walked into the comic book store, he read them right then and there. Not just one comic book. Not two. He read them all. Every single comic book on the rack. Every single comic book in the store. Every. One. He loved them all, but some favorites were Doctor Strange, Batman, Green Lantern, Superman, and even Iron Man.

"In the comics, it always seems like they are trying to save the world,"[8] Elon said.

Devouring as many sci-fi books as he could get his hands on, Elon discovered a similar theme. His favorites were Isaac Asimov's Foundation series, Robert Heinlein's *The Moon Is a Harsh Mistress*, and J. R. R. Tolkien's *The Lord of the Rings.*

"At one point, I ran out of books to read at the school library and the neighborhood library,"[9] he said.

Ran. Out. Of. Books. So what do you do as fourth grader when you have gone through the entire collection of *two* libraries? Well, the first thing Elon did was try to convince the librarians to order more. And while he waited for those new books to come in, he needed to do something to keep his insatiable curiosity well fed . . . he read the entire Encyclopedia Britannica from beginning to end.

He relished the information, loved knowing about the greater world and everything in it. And Elon became something of a walking, talking encyclopedia himself. If his family had a question, they

turned to Elon for the answer. His sister, Tosca, gave him a nickname: Genius Boy.

That said, sometimes when people around him were talking, they might get a fact or two wrong. But Elon always knew the right answer and instantly corrected them. As you can imagine, this did not win him friends. While his younger siblings were popular and had plenty of playdates, Elon did not.

But the lack of friends did not hold Elon back from reading and obtaining as much knowledge as he could on any topic that interested him. The lack of friends did not stop him from his deep distant daydreams. And the lack of friends did not prevent him from opening the covers of a great science fiction novel and losing himself completely in the story.

The truth was, the books and daydreams helped Elon feel less alone.

It had now been two years since Elon's parents divorced. Elon began thinking of his dad, who lived alone. Something about that seemed sad to Elon, even unfair.

"I felt sorry for my father," Elon explained to *Rolling Stone*'s Neil Strauss. "He seemed very sad and lonely by himself. So I thought, 'I can be company.'"[10]

As he saw it, his mom had all three kids. Elon felt it was only fair that he go and live with his father. In the end, both he and his younger brother, Kimbal, moved in with Errol Musk.

Errol was a talented and gifted engineer, an entrepreneur, and part owner of an emerald mine. His home had plenty of books to feed Elon's reading habit. And with site visits to Errol's construction projects, Elon and Kimbal took advantage of the opportunity to roll up their sleeves and learn. Studying pipes and lines, they learned

plumbing. Mixing and spreading mortar, the boys learned how to lay bricks. They added wiring, window fitting, and other jobs to their growing list of skills. That hands-on experience, combined with what Elon was reading, his ability to visualize processes, and his own intelligence, meant he quickly understood complicated tasks and engineering concepts in a way that felt innate, obvious.

"What's very difficult for others is easy for me. For a while, I thought things were so obvious that everyone must know this," he said. "Like how the wiring in a house works. And a circuit breaker, and alternating current and direct current, what amps and volts were, how to mix fuel and oxidizers to create an explosive. I thought everyone knew this."[11]

There was another perk to living with his father: the travel. Errol took the kids on amazing vacations to different countries around the world. But there was one place Elon wanted to visit more than any other: America. After all, as Elon leafed through page after page of his comic books, they all seemed to take place in the United States. If the storyline was good versus evil, then the backdrop for that battle, the stage for those save-the-world confrontations, was America. Plain and simple.

And Elon wanted to see it for himself. America was a place where anything seemed possible. It stood in complete contrast to the environment of apartheid in South Africa.

APARTHEID: A system of institutional segregation and discrimination for the sole benefit of white people. Codified into law in 1948, black South Africans had almost no escape from their horrific circumstances. During Elon's childhood, international outrage at apartheid exploded. It was a dangerous time inside South Africa, with protests, uprisings, and demonstrations often ending in fatalities. The apartheid laws were repealed in 1991.

Finally, at ten years old, Elon was sitting on a plane with his dad, headed for a visit to the land of the free.

America did not disappoint. While caped superheroes were not roaming the streets, Elon did discover something amazing in his hotel—an arcade.

Elon already had a video game player, but it was quite primitive. "It didn't have cartridges," he said. "It had four games you could play."[12]

But in America at that time, many hotels and motels had their own video game arcades, and traveling from one city to another, Elon made finding the game room a priority.

Slipping quarters into the slots, pushing buttons at rapid fire, finessing his moves, Elon wasn't just playing the games, he was puzzling out bigger questions. How do these games work, anyway? How do you program them? How do you program computers? How do you create games?

Not long after Elon returned to South Africa, Elon would get his first chance to explore his questions about video games, computers, and how they worked.

On his next trip to the local mall, Elon headed straight to the electronics store. And it just so happened, they'd received shipment of a new type of electronic—a home computer.

"It was like, 'Whoa,' Elon explained. "I had to have that and then

hounded my father to get the computer."[13] Gathering up all his saved allowance, Elon asked his father to make up the difference.

THROWBACK!

Commodore-VIC 20

MEMORY: 5 kilobytes

RELEASE DATE: 1980

HISTORY: The first computer to sell one million units, it was a hit on the new home computer market. Previously, computers were sold to businesses, universities, and adult professionals. This computer was targeted to families and kids for games and education.

PRICE WITHOUT ACCESSORIES: $299.95

COMPETITIVE EDGE: Sound and color

PITCH MAN: William Shatner, as in Captain Kirk!

A Commodore VIC-20. (Photo by Evan Amos.)

Soon, Elon had a Commodore VIC-20 sitting in his house. It came with a manual for BASIC programming language—with a workbook full of lessons to practice each new bit of programming.

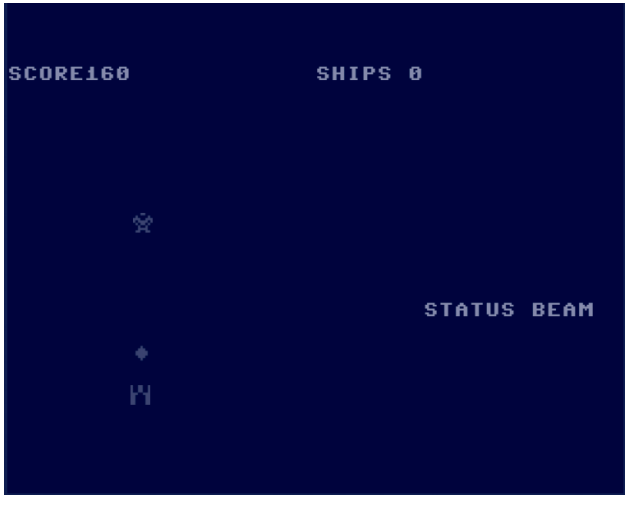
"It was supposed to take like six months to get through all the lessons,"[14] Elon said.

But for ten-year-old Elon? It took him *three* days. He didn't sleep, but he mastered programming his new computer. "It seemed like the most super-compelling thing I had ever seen,"[15] he said. Elon set to work trying to program his own games.

He couldn't get over it. "You could type these commands, and then something happens on the screen. That's pretty amazing."[16]

Two years later, Elon created a game called Blastar. "In this game," Elon wrote in the description, "you have to destroy an alien space freighter, which is carrying deadly Hydrogen Bombs and Status Beam Machines." Elon sold the code to a technology magazine for $500. It was his first taste of taking a new technology, obsessing over it, innovating, and then using those skills to make money.

> **GAME ON!** A software engineer at Google has since taken the code and made the game playable online for free. blastar-1984.appspot.com.



From the outside looking in, Elon had everything: a beautiful sprawling house, money, a spot in a great school, his *own computer* (at a time when that was an exorbitant luxury), and a father who shared his knowledge and time with his boys. It seemed perfect. But inside was another story—and that story was (and is to this day) dark and painful.

"It may sound good," Elon said. "It was not absent of good, but it was not a happy childhood. It was like misery."[17]

The problem, according to Elon, was his dad.

"He was such a terrible human being," Elon divulged to *Rolling Stone*. "You have no idea. My dad will have a carefully thought-out plan of evil. He will plan evil."[18]

To biographer Ashlee Vance, Elon said, "He's good at making life miserable—that's for sure. He can take any situation no matter how good it is and make it bad. He's not a happy man," he explained. "I don't know how someone becomes like he is. It would just cause too much trouble to tell you any more."[19]

Even Elon's mother would not elaborate when pressed for more detail in interviews. "Nobody gets along with him. He is not nice to anyone. I don't want to tell stories because they are horrendous,"[20] she said to Vance.

At school, Elon's situation was not any easier. He was growing up in a South Africa that celebrated macho behavior and conventional stereotypes of what it means to be a young man. But Elon was not particularly interested in sports or athletic pursuits. He was interested in technology, computers, games, and sci-fi.

Despite being at a prestigious private school, Elon found himself the target of bullies. It wasn't just that they picked on him.

"I was the youngest and smallest kid in class for years and years,"

he said. "The gangs at school would hunt me down—literally hunt me down!"[21]

One day at school, Elon sat next to Kimbal, at the top of a flight of concrete stairs, as a group of bullies sneaked up from behind. The gang had Elon in their sights. With every quiet, stalking step, the bullies inched closer to Elon. Finally, his head was in reach. A boy kicked Elon in the head so hard, the force sent him tumbling down the stairs, hitting step after step all the way to the bottom.

They didn't stop there. Clambering down the stairs, the boys jumped Elon and beat him until he passed out. He woke up in the hospital.

With nowhere to turn, Elon retreated into books. He opened a copy of Douglas Adams's *Hitchhiker's Guide to the Galaxy.* But Elon wasn't reading for entertainment. He was searching for an answer to an enormous question: What is the meaning of life?

> **BOOKSHELF!** *The Hitchhiker's Guide to the Galaxy* is the first book in a comedy science fiction series by Douglas Adams. Originally broadcast as a BBC radio show in 1978, the story centers on what happens after Earth's destruction (or rather demolition), mocking modern society as it follows the adventures of a reluctant space traveler. A cultural phenomenon, the story has been adapted into a television series, a video game, a film, comic books, and plays.

"It highlighted an important point, which is that a lot of times the question is harder than the answer. And if you can properly phrase the question, then the answer is the easiest part. So, to the degree that we can better understand the universe, then we can better know what questions to ask. Then whatever the question is that most approximates: What's the meaning of life? That's the question

we can ultimately get closer to understanding. And so I thought to the degree that we can explain the scope and scale of consciousness and knowledge, then that would be a good thing,"[22] Elon said later.

It was an eye-opening revelation that refueled his drive to learn as much as possible.

Elon's free time was consumed with reading, flipping through the pages of comic books, playing Dungeons & Dragons, and sitting at his computer.

> **GAME ON!** Dungeons & Dragons is a tabletop fantasy role-playing game. Assuming a character's identity, players go on epic imaginary adventures that require problem-solving, treasure hunting, and battles to acquire knowledge. By the time Elon was in middle school, the game's popularity had exploded, with millions of players around the globe.

Dungeons & Dragons manual and game pieces. (Photo by Mandy Pursley.)

Pondering the meaning of life helped. But so did this. Elon hit a growth spurt. He shot up to six feet tall. The bullies were no longer a problem after Elon punched the toughest of them all, square in the face.

"It taught me a lesson," Elon said. "If you're fighting a bully, you cannot appease a bully. You punch the bully in the nose."[23]

If selling code for a video game was dipping his toe into the entrepreneurial waters, at sixteen years old, Elon and his brother, Kimbal, were about to wade in waist deep.

They decided to open a video arcade. Elon found a spot near his high school that would be perfect. "We had a lease, we had suppliers,"[24] he explained.

But what he didn't have was a permit. The police caught wind of it and quickly pointed that out . . . which led to something else they didn't have . . . their father's permission.

"Our parents had no idea. They flipped out when they found out, especially my father,"[25] Elon said.

Decades later, Elon and Kimbal sat together on a conference stage, still bemoaning what had happened to their arcade.

"When our parents found out, they put a stop to it—which was a real bummer because it would have been very successful,"[26] Kimbal said. Although the arcade met its end before getting off the ground, Elon and Kimbal's interest in working together survived.

But their childhood was coming to a close, and Elon decided it was time to leave South Africa to begin his life's work.

"The heroes of the books I read, *The Lord of the Rings* and the Foundation series, always felt a duty to save the world,"[27] he said.

Something big began to stir inside Elon, a mission. And that mission sprang right out of the pages of the books he was reading: Unlikely hero emerges from impossible circumstances to save humanity. And, Elon felt sure, the stage for the next part of his life would not be set in South Africa. He knew the place for his quest: America. But he did not know how he would get there.

Meet the Musks

NAME: Maye Musk (née Haldeman), Elon's mother

DATE OF BIRTH: April 19, 1948

CITY: Regina, Saskatchewan, Canada

INSTAGRAM: mayemusk

Maye moved to Pretoria, South Africa, as a toddler with her parents and three siblings. She, too, knows something about being bullied. In an interview with *1843* magazine, she recounted how she was so brilliant at math that she was often pulled out of class to show older students how to solve their math problems. This was not a recipe for popularity. But when bullies sought her out, Maye had a secret weapon—her twin sister. Kaye was athletic and stood up to the bullies. That sisterly bond remains tight.

Maye began working at the age of fifteen as a model. At college, Maye earned a degree in dietetics. Maye married Elon's father in 1970, had three children, and continued to work as both a model and dietician, while adding two master's degrees to her résumé.

In 2017 CoverGirl cosmetics named Maye an official CoverGirl. At seventy-plus years old, she has broken barriers and stereotypes about older women and how their worth, style, and sex appeal should be defined. As she put it, #JustGettingStarted.

Maye Musk at the 2018 Marie Claire Fresh Faces Party. (Photo by Richard Shotwell/Invision/AP.)

CHAPTER 2

LAUNCH

Like any superhero in the comic books he was reading, Elon needed a plan to get the one thing he really wanted: a new address in America. But his plans never seemed to work out. Arguing, explaining, negotiating, Elon tried to convince his parents to move to America—for years. And for a while, it seemed he might catch a break. Elon's dad had finally agreed to make America their new home. But in the end, Errol changed his mind. It was quite a blow.

While Errol may have changed *his* mind, Elon *never* wavered from that goal.

"Whenever I would read about cool technology, it would tend to be in the United States, or more broadly North America, including

Canada. So I wanted to be where the cutting edge technology was,"[28] he said.

And if Elon stayed in South Africa he would be forced to participate in mandatory military service for a regime he didn't believe in.

"I don't have an issue with serving in the army per se, but serving in the South African army suppressing black people just didn't seem like a really good way to spend time,"[29] Elon explained.

But how could he just move to another country and start a new life? And specifically, how could he just move to America to live, study, and work? He was South African, not American. Immigration laws didn't allow you to just show up and put down stakes.

Thinking it over, Elon's attention turned to his mother. Though she moved to South Africa at a young age, she was actually Canadian. And her father was American! Could Elon get citizenship through his grandfather? That hope was quickly dashed because his mother did not hold an American passport.

Researching immigration law, Elon kept looking for a solution. Perhaps he couldn't move directly to America, but what about Canada? Elon reasoned that if he received a Canadian passport, it would be easier to *eventually* immigrate to the United States.

Digging around in the details of citizenship law, seventeen-year-old Elon found a way out of South Africa. Because his mother was born in Canada, her children were eligible for Canadian citizenship. All he needed her to do was fill out the paperwork to get her Canadian passport, and then he could get one too. Elon filled out the forms and immediately put them in the mail. After nearly a year, Elon's passport finally arrived.

"Within three weeks of getting my Canadian passport, I was in Canada."[30]

This was no small thing. In 1989, when Elon made this trip, there was no Internet, really. You couldn't google your destination. Google Maps would not be there to help you get from point A to point B. In fact, if you wanted to travel, you usually turned to a professional travel agent. But Elon did not have that resource. His father wasn't funding this adventure; he'd only pay for schooling in South Africa. If Elon was going to make it in Canada, he had to figure it out himself: what to do, where to settle, and how to pay for it.

Sealing an envelope, Maye sent a letter to her uncle in Montreal announcing Elon's arrival. It would be great if Elon could stay with him. She waited for a reply, but by the time Elon's flight took off for Canada, she had not heard back.

Elon's plane landed and he needed to get ahold of this long-lost uncle. Plunking coins into the slot of pay phone, Elon did what everyone did back then to find a phone number: he called the operator. But the operator could not find a listing for Elon's uncle.

> Before cell phones, if you needed to make a call away from home or work or school, you had to use a public pay phone. They were conveniently placed in airports, hotels, some street corners, and other busy places. You held the receiver up to your ear and started putting coins into it—like a parking meter. The more money you spent the longer you could talk. Mid-conversation, the phone would alert you that your time was running out, which resulted in a sort of dance—people urgently searching pant pockets, purses, and wallets for extra coins! But there was a backup if you wanted to save your money: calling "collect." The operator would place the call and ask the person on the other end to pay for it. If you were calling your parents, this was definitely the way to go.

Elon called his mom back in South Africa.

"Collect call from Elon Musk. Will you pay for the call?"

Elon's mother took the call. And that's when she gave Elon the news. The uncle, Elon's would-be Canadian host, had moved to Minnesota. *Minnesota*.

Now what? Elon had a backpack, a suitcase full of books, and two thousand bucks. It wouldn't go far.

Elon found a youth hostel in Montreal and paid for the cheapest bed he could find.

But he needed a plan and fast. He was halfway around the world, with little money, no family, and no idea what he was going to do next.

YOU, TOO, CAN BE ELON MUSK FOR JUST $1 A DAY

WALKING AROUND MONTREAL, ELON STARTED TO COME UP with ideas. He knew that other distant relatives (whom he'd never met before) lived in Canada, but nowhere near Montreal. In fact, they lived in the province of Saskatchewan.

> Saskatchewan was home to a large community of South Africans who fled apartheid in political protest and in hopes of greater economic opportunities that were simply not possible in South Africa at that time.

Of all the options he considered, the cheapest was to buy a countrywide bus ticket and try to find his family.

Nearly two thousand miles later, Elon crossed into Saskatchewan and stepped off the bus in a tiny town called Swift Current. Once again, Elon found himself again pushing coins into a pay phone.

He dialed the number of a second cousin. No one knew Elon was coming. No one would recognize his voice. But as Elon waited for someone to answer the phone, he hoped that being family would be enough to land him a place to stay.

He was in luck. This time, his cousin answered the phone. Hitching a ride, Elon soon showed up on the front doorstep and was shown a guest bed.

Elon Musk
@elonmusk
Replying to @Caseykins421 and @justinandgreg
Yeah, worked on my cousin's farm for six weeks around my 18th birthday. I was so kewl.

Elon Musk's tweet about his time in Saskatchewan (screenshot taken March 8, 2019).

Now, he could check shelter off the list. Next, he needed money. He'd landed on Canadian soil with around two thousand bucks. Some was spent on hostels. Some was spent on his bus ticket. Some was spent on food. It was not going to take him much farther.

So he would need to find a job to make money to feed himself and save for some kind of future, which would require an education.

Thinking it through, Elon wondered what was the least amount of money he needed to survive. Researching the cost of food, he figured he could get that cost down to a dollar a day, by purchasing hot dogs and oranges in bulk. Hot dogs and oranges. Yum.

"You can really get tired of hot dogs and oranges after a while,"[31] Elon later joked in an interview with Neil deGrasse Tyson. Occasionally he threw in some pasta, a green pepper, and even a giant jar of tomato sauce.

"So if I could live for a dollar a day," he explained, "well, it's pretty easy to earn like thirty dollars in a month."[32] Elon started knocking on doors looking for work. He tried farm work, growing vegetables and shoveling grain. He went to Vancouver, British Columbia, and wielded a chain saw as he tried logging. The most profitable post in this series of odd jobs was cleaning the boiler room of a lumber mill. But it was the stuff of nightmares.

Pulling on his hazmat suit, Elon crawled and wiggled his way through a tight underground tunnel to access the boiler.

"Then, you have to shovel and you take the sand and goop and other residue, which is still steaming hot, and you have to shovel it through the same hole you came through. There is no escape. Someone else on the other side has to shovel it into a wheelbarrow," Elon explained. "If you stay in there for more than thirty minutes, you get too hot and die."[33]

On the upside, he made eighteen bucks an hour.

Once Elon had a little bit of money, he enrolled in college.

Soon, his mother came for a visit. In addition to seeing her eldest boy, Maye was on a mission of her own—scoping out Canada and making a plan to move there.

Back in South Africa, Elon's fifteen-year-old sister, Tosca, was also getting down to business. While her mother was out of town, Tosca put the family home on the market—and sold it. Then she sold the furniture and her mother's car. When Maye returned to South Africa, Tosca asked her mother to sign on the dotted line to close the deal.

> Queen's University. Kingston, Ontario. Founded in 1841. The school's motto is *Sapientia et Doctrina Stabilitas*, "Wisdom and knowledge shall be the stability of thy times."

Ontario Hall at Queen's University. (Photo by Shin.)

As Elon's classes began at Queen's University in Ontario, his mother and sister rented a small apartment less than three hours away in Toronto. As for Kimbal, he had a year of high school left and stayed in South Africa to finish. But make no mistake about it: As soon as his studies wrapped up, Kimbal intended to move to Canada as well.

Elon quickly settled into life on a college campus. Spending time talking about things like electric cars or space or any other intellectual topic he wanted delve into, he felt comfortable. And he was meeting other students who didn't mind his know-it-all fact machine conversation style. His knowledge and drive was less out of place. It wasn't that he became the popular man about campus. But he found a place for himself and friends to share the journey. Elon bonded

with his dormmate, Navaid Farooq, who also grew up abroad and had an interest in strategy games. Controllers in hand, they spent hours gaming together.

For extra cash, Elon built a little makeshift business selling computers and their parts. Tweaking this and that, he offered customized service. "I could build something to suit their needs like a tricked-out gaming machine or a simple word processor that cost less than what they could get in a store,"[34] he explained to a reporter. And if people ran into problems with any computer, he could always fix it.

Something else soon caught his attention: dating. In his second year Elon was captivated by a beautiful new student, Justine Wilson.

"She was also smart and this intellectual with sort of an edge. She had a black belt in tae kwon do and was semi-bohemian and, you know, like the hot chick on campus,"[35] he told biographer Ashlee Vance.

He had to figure out how to meet her. And Elon being Elon, he quickly came up with a plan.

Waiting outside her dorm, he "accidentally" bumped into her. He attempted small talk and even got her to agree to meet up for an ice cream.

Only, she didn't show. She was too busy studying. So he found out through friends what flavor ice cream she liked best, and then he delivered it to her as she sat behind a pile of books in the student center. And he did not stop there. He sent roses, books (since she wanted to be a writer). Justine was swept off her feet, and the two started dating.

By now, Kimbal had made his way to Canada and also enrolled in Queen's. Reunited, the Musk brothers were ready to take on the world. They figured if you want to be big in business, you better learn from the people already running big companies. And so they started

by making a list of important people. Scouring the newspaper, they jotted down the names of business leaders and decision makers. And then they started cold-calling each and every one to try to set up a lunch, a dinner, a coffee, any face-to-face meeting where they could pick an expert's brain and learn something you couldn't get sitting in a lecture hall.

They called sports team owners, business reporters, CEOs, and a lot of bank executives. And one of them, Peter Nicholson, from Scotiabank, thought the Musk brothers' curiosity, drive, and pluck were absolutely fantastic.

"I was perfectly prepared to have lunch with a couple of kids that had that kind of gumption," Nicholson reminisced to a reporter.[36]

Thrilled, Elon and Kimbal took a three-hour train ride to pick Nicholson's brain. The executive was so impressed that he offered Elon a summer internship.

That summer, as Elon not only toiled away at his intern-level responsibilities, he also soaked in every detail of banking that he could. And that information didn't sit idle in his head. Elon analyzed it and summed up the entire banking industry with fresh eyes. To Elon, banks were neither nimble nor innovative. And, in his opinion, their lack of fresh, original thinking in their business was actually costing them money in missed opportunities.

"All the banks did was copy what everyone else did. If everyone else ran off a bloody cliff, they'd run right off a cliff with them. If there was a giant pile of gold sitting in the middle of the room and nobody was picking it up, they wouldn't pick it up either,"[37] he said.

Elon also learned the more pedestrian lesson of working in a real office: If an office coffee maker is labeled EXECUTIVES ONLY, an intern—no matter how self-assured or brilliant he might be and no

matter how dumb the existence of an exclusive pot of coffee may seem—should not use it. Ever. Not unless that intern wants to be yelled at—the way Elon was for sipping coffee from said pot o' java.

As summer came to an end, Elon was readying for big changes. With two years of stellar coursework under his belt, Elon had applied to the University of Pennsylvania. Not only was he accepted, he received a scholarship and transferred in 1992.

> The University of Pennsylvania, aka Penn, is an Ivy League school in Philadelphia. Opening its doors in 1751, the school followed the educational principles of it first president, Benjamin Franklin, one of Elon's heroes. Wharton is the university's business school.

Jon M. Huntsman Hall, the main building of the Wharton School at the University of Pennsylvania. (Photo by WestCoastivieS.)

It meant leaving his mom, brother, and sister in Canada. It also meant a long-distance relationship with his girlfriend, Justine. But it also meant he had finally made it to America.

AMERICA

NEW DIGS, NEW PROBLEMS. ELON NEEDED TO FIND A WAY TO support himself in his new country. Even with a scholarship, Elon still had expenses.

He turned to his new roommate, Adeo Ressi, and they began to scheme.

> A New York City kid, Adeo Ressi returned to his hometown in 1994 and created an online guide to the city that was snapped up by America Online. Ressi continued founding successful companies and served on the board of the XPRIZE Foundation. Today he is the CEO of the Founder Institute, which trains future entrepreneurs.

Adeo Ressi speaking at the Start-up Festival 2014. (Photo by Eva Blue.)

STEP ONE: Rent a huge house. (They found a ten-bedroom house to suit their needs and got a deal on the rent.)

STEP TWO: Live in it during the week.

STEP THREE: Turn said house into a nightclub on the weekends. That's right, a nightclub.

Garbage bags darkened the windows, glow-in-the-dark paint lit up the walls, and the bass thumped hard enough to shake the ground outside. And the price to get in? Five dollars a person, which covered drinks. They had enough beer and Jell-O shots on hand to serve the more than five hundred people who showed up.

But make no mistake, this wasn't Elon wanting to party. This was business. "Somebody had to stay sober during these parties. I was paying my own way through college and could make an entire month's rent in one night,"[38] he said.

And if Maye happened to be in town visiting her son, Elon gave her a shoebox, a place to sit at the front door, and a job: Collect the money.

Elon was hitting his stride. His entrepreneurial spirit thrived, and so too did his studies.

He pursued two degrees—one in economics from the Wharton School and the other in physics, turning in papers about solar energy, digitizing books, and new breakthroughs in energy storage. These were very forward-thinking ideas that he wanted to develop and explore. In the 1990s solar energy was not at the top of the average person's mind. The world was still fixated on oil, and climate change wasn't a topic of dinner conversation in most homes. Google—who eventually started a massive book digitization project—would not even be a company for four more years.

And yet, Elon had delved into these topics with an ability not only to understand them, but to turn them into business plans.

As Elon started thinking about what he would do after college, where he wanted to make a difference, these ideas were very much on his mind.

"I thought about what were the areas that would most affect the future of humanity, in my opinion. The three areas were the Internet, sustainable energy, and space exploration."[39]

But, in theory, you can't work on all those things at the *same* time, right? So, Elon picked one: sustainable energy. And he narrowed that down to electric cars. He focused on battery storage for electric vehicles. After all, if electric cars were going to travel greater distances . . . like, say, to the next town, or have enough juice for an entire day of errands, the batteries needed to improve.

His attention turned to capacitors, which were more powerful, to be sure, but couldn't store more energy—unless there was a technological breakthrough. In that case, capacitors could get really interesting! And Elon saw the potential for just such a breakthrough.

> **WARNING!** If you are planning to ask Elon about capacitors, be prepared. He can go on about them at the drop of a hat, with an absurd level of technical detail and something else—sheer delight. "So the area that I was studying was advanced capacitors—so essentially capacitors that have an energy density exceeding that of batteries. Because they have a very high power density but a low energy density," he said in an interview, with no notes. "So obviously if you could make a capacitor that had anywhere near the energy density of a battery with this incredibly high power density and its quasi-infinite cycle and calendar life, then you'd have an awesome solution for energy storage and mobile applications."[40] Now, try to say that three times fast! 😮

Even so, that breakthrough was a major *if* and the path to success was not guaranteed. And Elon wasn't sure success was even a possibility. As he said years later in an interview, when you embark on something, "it's desirable to figure out if success is at least one of the possibilities. Because for sure failure is one of the possibilities."[41]

He wanted to get this right. It was his future—requiring him to invest loads of precious time. Years could go by. And if you picked the wrong thing, well, you didn't get that time back.

He thought the idea and research would probably make a great topic for a dissertation, but what good would that do in the end? "So you add some leaves to the tree of knowledge," he said, laughing, "and the leaf is 'Nope, it's not possible.'"[42] That would be a bummer. And Elon's drive centered on making a meaningful contribution to humanity. It was a lot to think about. And he needed more information.

Luckily, as his final college summer arrived in 1994, he had two internships set up in Silicon Valley—a massive dose of real world experience. Working every waking hour, Elon spent his days focusing on ultracapacitors for electric cars at a company called Pinnacle Research Institute. Then, at the end of that shift, he headed to his job at the video game maker Rocket Science!

At the end of the summer, it was time to have a long conversation about what he learned, what he experienced, and what he wanted to do next. And there is no better format for that conversation than a good, old-fashioned road trip—with Kimbal. The two brothers bought a beater. To be fair, it was a BMW—but it was also twenty years old and not in awesome shape. But it would do.

"We went on a road trip from Silicon Valley to Philadelphia," Kimbal recounted. Laughing, he added, "I am younger than Elon, but we were both finishing school at the same time—because I am much

smarter than him!"[43] Kimbal added that, in truth, it was Elon's *double* major that accounted for their arriving at the finish line around the same time.

Elon wasn't the only one who needed a post-college plan; so did Kimbal. Perhaps there was something they could do together. Their conversation quickly focused on an emerging technology—the Internet. In the early 1990s the Internet was new, ripe for opportunities.

Most Americans didn't even know what it was, much less what to use it for. Life was paper based.

"If you wanted to have access to a lot of information, like, you'd go to the Library of Congress," Elon explained. "Unless you were physically where the books were, you did not have access to that information."[44]

When you needed money, you drove to the bank or to an ATM and withdrew it. If you needed a phone number, you turned to a paper phone book and looked it up. If you wanted to watch a movie, you went to the theater and bought a ticket. If you needed new clothes, you drove to a store and purchased them. Life was mostly conducted in person. You did business with people and places you trusted or who had a solid reputation.

No one had any idea how dramatically the Internet would change all that.

Elon and Kimbal spent much of that cross-country drive talking about ideas, potential Internet-based businesses. The brainstorming did not stop with the road trip, nor after Kimbal headed back to Queen's, but continued the rest of the year.

And the more Elon thought about the Internet and all its possibilities, the more he did not want to miss out on the explosion of its development.

But Elon had been accepted into Stanford University's PhD program. That would mean a doctorate in materials science engineering from the mecca of technology's movers and shakers. If you were going to become a dot-com billionaire, this was the time and that was the place. The 1990s at Stanford, in the heart of Silicon Valley.

"The Internet came along, and it was like, oh, okay, the Internet. I'm pretty sure success is one of the possible outcomes. So I can either do a PhD and *watch* it happen or I can participate and help *build* it in some fashion,"[45] Elon explained.

> Stanford University is located thirty-five miles south of San Francisco, in the heart of Silicon Valley. The school is known for being an incubator of tech companies. Yahoo!, Google, Cisco, Hewlett-Packard, and many more have started in the halls and dorms of Stanford. (Or nearby garage apartments!)

In 1995, Elon finished his undergrad at Penn and headed to Stanford. And on day *two* of his graduate education, Elon made up his mind. He did not want to stand on the sidelines as a witness. He wanted to be part of it.

And so right then and there, he left. On. Day. Two.

It was a gutsy move. Quit school for a start-up. And not only that, a start-up based on technology most people did not even understand. Even though Elon had some scholarships and held raves to cover living expenses in school, he still had managed to amass $110,000 in college debt.

The safe bet would have been a Stanford degree.

But Elon did not want to simply *observe* one of the most exciting technological advancements. He was willing to take a huge risk and shoot for the moon.

BOOKSHELF! *The Lord of the Rings* by J. R. R. Tolkien. Elon's vision of the future and his role in it was heavily influenced by what he read. This fantasy saga was one of Elon's favorites growing up. Like so many of the storylines that inspired Elon, this book series features an epic battle, fought by a band of heroes, who are fighting against all odds to save the world. First published in 1954–55 in three volumes, the saga became one of the best-selling novels of all time and remains popular today.

Meet the Musks

Tosca Musk. (Photo by Bloomberg/Contributor/Getty Images.)

NAME: Tosca Musk, Elon's sister

YEAR OF BIRTH: 1974

PLACE: Pretoria, South Africa

The baby of the Musk clan, Tosca also has her family's trademark entrepreneurial spirit and talent. She is a successful film director and producer and has launched a subscription movie company called Passionflix, which streams original movies and other content adapted from romance novels. Tosca has twin children at home in Los Angeles and was inspired by her mother, Maye, who worked from home when all three kids were small. Her mother taught her the value of hard work and gave her a front-row seat to running a business.

What does Tosca think of her eldest brother? "Elon has already gone to the future and come back to tell us what he's found."[46]